DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	TODD LAKE	Lake Area (ha):	68.07
Town:	NEWBURY	Maximum depth (m):	6.1
County:	Merrimack	Mean depth (m):	2.2
River Basin:	Merrimack	Volume (m^3):	1466500
Latitude:	43°16'45" N	Relative depth:	0.7
Longitude:	71°58'05" W	Shore configuration:	1.74
Elevation (ft):	670	Areal water load (m/yr):	1.17
Shore length (m):	5100	Flushing rate (yr^{-1}):	0.50
Watershed area (ha):	155.4	P retention coeff.:	0.88
% watershed ponded:	6.1	Lake type:	natural w/dam

BIOLOGICAL:		30 December 1991	17 July 1991
DOM. PHYTOPLANKTON (% TOTAL)	#1	ASTERIONELLA 80%	CHRYSOSPHAERELLA 70%
	#2		MELOSIRA 10%
	#3		
PHYTOPLANKTON ABUNDANCE (cells/mL)			535
CHLOROPHYLL-A (µg/L)			4.74
DOM. ZOOPLANKTON (% TOTAL)	#1	KELLICOTTIA 47%	NAUPLIUS LARVAE 30%
	#2	CODONELLA 17%	POLYARTHRA 22%
	#3		KELLICOTTIA 21%
ROTIFERS/LITER		47	180
MICROCRUSTACEA/LITER		5	154
ZOOPLANKTON ABUNDANCE (#/L)		70	344
VASCULAR PLANT ABUNDANCE			Common/Abun
SECCHI DISK TRANSPARENCY (m)			3.0
BOTTOM DISSOLVED OXYGEN (mg/L)		8.1	1.8
BACTERIA (fecal col., #/100 ml)	#1		< 10
	#2		< 10
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 4.8
Hypolimnion volume (m^3) : None
Anoxic volume (m^3) : None

CHEMICAL:

Lake: TODD LAKE
Town: NEWBURY

	30 December 1991		17 July 1991		
DEPTH (m)	2.0	4.0	2.0		5.0
pH (units)	6.4	6.2	7.1		6.5
A.N.C. (Alkalinity)	5.2	5.3	6.7		7.3
NITRATE NITROGEN	0.02	0.03	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN					
TOTAL PHOSPHORUS	0.003	0.005	0.011		0.014
CONDUCTIVITY (μmhos/cm)	40.3	40.4	45.1		46.0
APPARENT COLOR (cpu)	18	22	18		21
MAGNESIUM			0.54		
CALCIUM			2.8		
SODIUM			4.5		
POTASSIUM			0.58		
CHLORIDE	3	3	5		5
SULFATE	6	5	3		3
TN : TP					
CALCITE SATURATION INDEX			2.9		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1991

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	3	4	1	8	Meso.

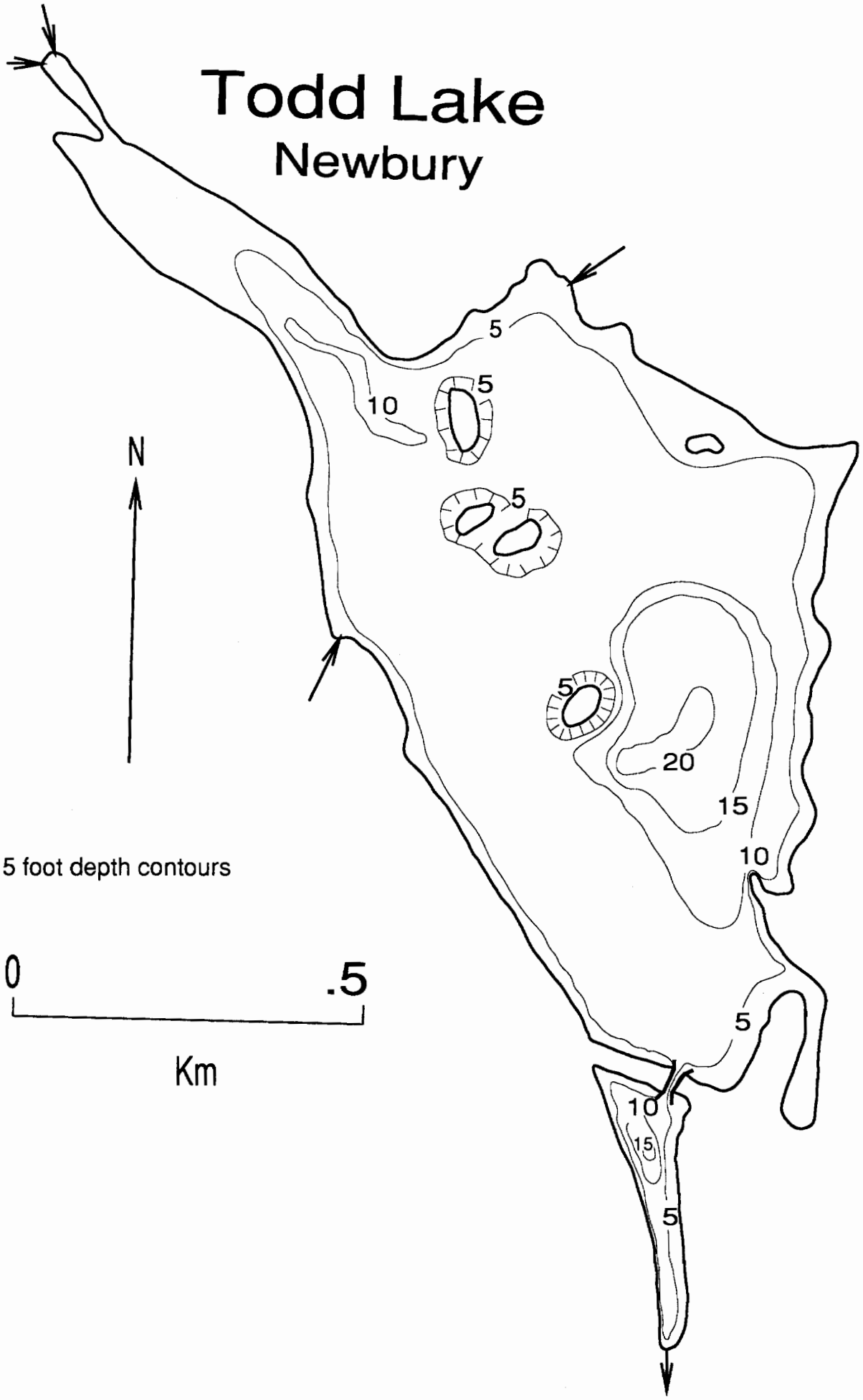
COMMENTS:

1. Also known as Todd Pond, Todd's Pond, Lake Todd and Todd's Lake.

2. In 1991 the Water Resources Division determined that Todd Lake was a natural pond over 10 acres, raised by damming, and thus a great pond. The Lake Todd Association does not accept that determination; they contend the pond is an artificial impoundment.

3. No public access.

4. This pond was previously surveyed and classified in 1977. The pond was eutrophic in 1977, but that determination included the use of a 1938 Fish & Game dissolved oxygen value. There was little change in water quality between the two years, although the subjective evaluation of plant abundance suggests that plants were somewhat less abundant in 1991 (this conclusion does not hold if the two plant maps are compared).


Todd Lake
Newbury
N
5
10
5
5
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20
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5 foot depth contours
0
.5
Km

FIELD DATA SHEET

LAKE: TODD LAKE
DATE: 07/17/91

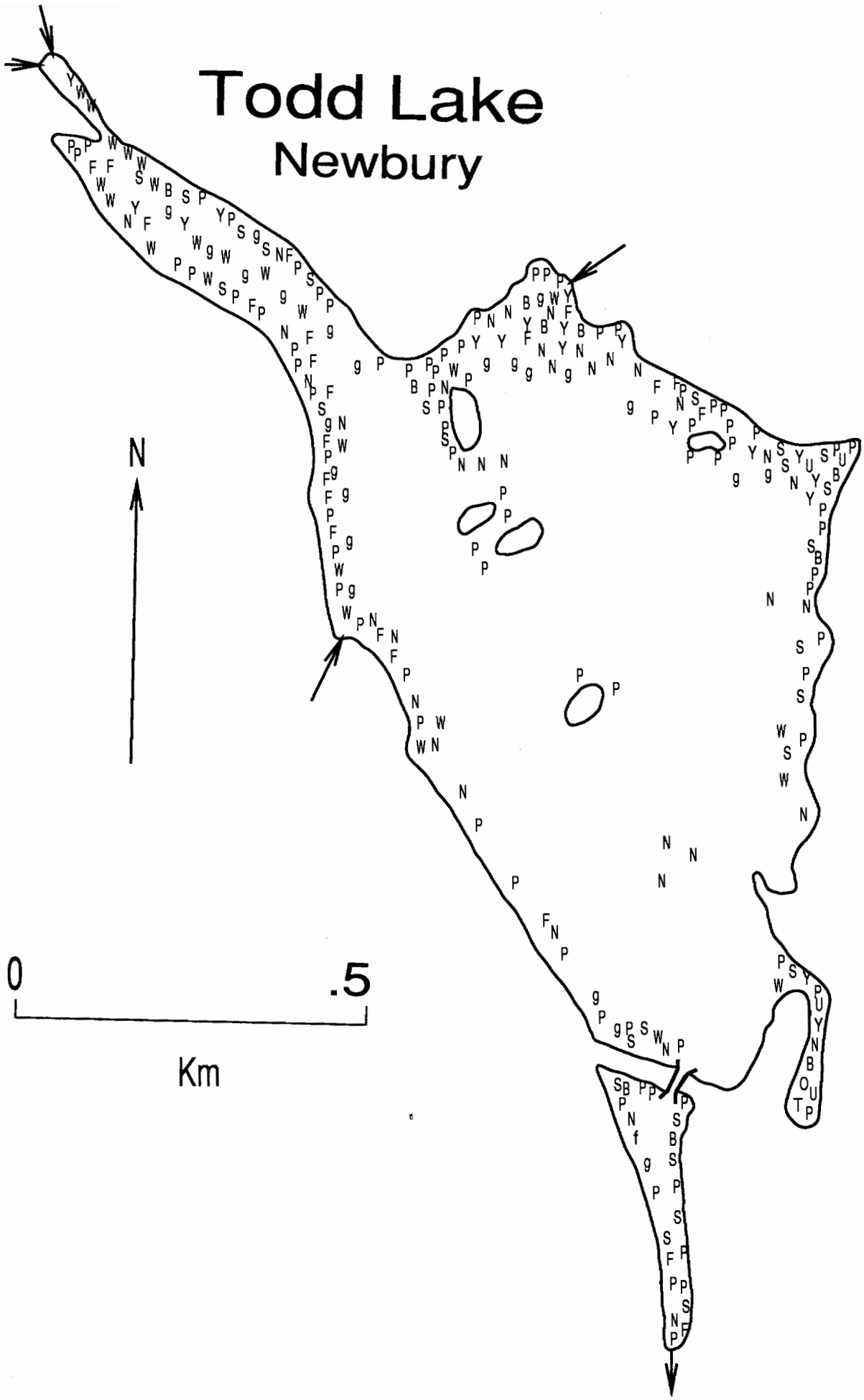
TOWN: NEWBURY
WEATHER: SUNNY & BREEZY

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	24.0	8.8	103 %
	1.0	24.0	8.6	101 %
	2.0	23.9	8.4	97 %
	3.0	22.5	8.2	93 %
	4.0	20.5	6.4	70 %
	5.0	15.2	1.8	18 %
	6.0	11.5	1.8	16 %

SECCHI DISK (m): 3.0
BOTTOM DEPTH (m): 6.2
TIME: 1245

COMMENTS:

*Dissolved oxygen values are in mg/L


Todd Lake
Newbury
N
0
.5
Km

AQUATIC PLANT SURVEY

LAKE: TODD LAKE TOWN: NEWBURY DATE: 07/17/91

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
P	Pontederia cordata	Pickerelweed	Common
U	Utricularia	Bladderwort	Scattered
N	Nymphaea	White water lily	Common
Y	Nuphar	Yellow water lily	Common
S	Sparganium	Bur reed	Common
B	Brasenia schreberi	Water shield	Scattered
W	Potamogeton	Pondweed	Common
F	Nymphoides cordatum	Floating heart	Common
g		Bottom growth	Abundant
f	Chlorophyceae	Filamentous green algae	Scattered
D	Decodon verticillatus	Swamp loosestrife	Sparse
O	Cephalanthus occidentalis	Buttonbush	Sparse
T	Typha	Cattail	Sparse
M	Myriophyllum humile	Water milfoil	Sparse

OVERALL ABUNDANCE: Common/Abun

GENERAL OBSERVATIONS:

1. Plants were particularly dense at the northern end of the pond.
2. Milfoil fragments were observed but no rooted plants.
3. Rhizosolenia (30%) was the dominant genus of wholewater plankton. The dominant classes were greens (35%) and diatoms (35%).